UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/553,301 | 08/01/2006 | Piet Barten | 5100-000025/US | 1890 |

30593 7590 02/18/2010
HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 8910
RESTON, VA 20195

| EXAMINER | |
|---|---|
| MCELWAIN, ELIZABETH F | |
| ART UNIT | PAPER NUMBER |
| 1638 | |
| MAIL DATE | DELIVERY MODE |
| 02/18/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/553,301 | BARTEN, PIET | |
| | Examiner | Art Unit | |
| | Elizabeth F. McElwain | 1638 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *20 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,3,4 and 6-19* is/are pending in the application.

4a) Of the above claim(s) *14-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 6-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

The amendment filed October 20, 2009 has been entered.

Claims 2, 5 and 20 are cancelled.

Claims 1 and 13-19 are currently amended.

### *Election/Restrictions*

1. This application contains claims 14-19 are drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

2. Claims 1, 3, 4 and 6-19 are pending.

3. Claims 1, 3, 4 and 6-13 are examined on the merits.

### *Claim Objections*

4. Claim 1 is objected to because of the following informalities: the first line of the claim should be amended to insert the word "of" after "providing". Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 4 and 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mithen et al (US Patent 6,340,784) for the reasons set forth in the last office action and as modified below to reflect the amendments to the claims.

3. The claims are drawn to a method of providing a plant with elevated levels of anticarcinogenic glucosinates, by providing a Brassica oleracea plant to breed Brassica varieties with at least 280 micromol 3MSPG per 100gm fresh weight of the edible part and greater than 120 micromol 4MSPG per 100 gm fresh weight of the edible part. Additional claims recite other amounts of each of 3MSPG and 4 MSPG, and specify certain varieties of Brassica oleracea.

4. Mithen et al teach a method of providing a plant with elevated levels of anticarcinogenic glucosinolates, by providing a *Brassica oleracea* plant, such as Green Duke broccoli (GD DH) and wild species of *B. oleracea* to breed Brassica varieties with elevated levels of anticarcinogenic glucosinolates, such as 3MSPG (MSP) and 4MSBG (MSB) (columns 6-8 and 11-13, for example). It is noted that Table 1 sets forth concentrations of the glucosinolates in micromole per gram of dry weight, while the claims are drawn to micromole per 100 gram of fresh weight of edible parts of the Brassica plant.

5. Mithen et al do not specifically teach the levels of 3MSPG and 4 MSPG anticarcinogenic glucosinolates per 100 gram fresh weight of edible parts of the Brassica that are specified in the claims. However, applicant has clarified in the response that 280 micromoles per 100 gm fresh weight would be equivalent to 28 micromoles per gram dry weight, and 120 micromoles per 100 gm fresh weight would be equivalent to 12 micromoles per gram dry weight.

6. Given the teachings of Mithen et al of the desirability of producing edible *Brassica oleracea* plants having elevated levels of anticarcinogenic glucosinolates, such as 3MSPG and

4MSBG by crossing Brassica varieties and selecting the progeny having high levels of 3MSPG or 4MSBG, and backcrossing for one or more generation to select for desired levels of the anticarcinogenic glucosinolates, it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce edible parts of *Brassica oleracea* plants with high levels of anticarcinogenic glucosinolates, such as anticarcinogenic glucosinolates, and the particular concentrations of 3MSPG and 4MSPG in 100 gram of fresh weight edible parts would be the result of optimizing process parameters. Thus the claimed invention would have been prima facie obvious as a whole to one of ordinary skill in the art at the time the invention was made.

7. Applicant's arguments filed October 20, 2009 have been fully considered but they are not persuasive. Applicant argues that Mithen uses wild Brassica species that introduce undesirable traits along with elevated levels of glucosinolates, while applicant's disclose the use of cultivated Brassica species. The Examiner maintains that the claims are broadly drawn to a method of crossing a Brassica oleracea plant with an unspecified plant to produce a Brassica plant. Therefore, the claims do not preclude crossing the cultivated Brassica oleracea plant with a wild Brassica species, and the claims do not recite any undesirable characteristics that would not be introduced. Furthermore, the term "cultivated" merely means that a plant has been subjected to cultivation. Therefore, any plant species and/or variety would be considered a cultivated plant when tended to for promotion of growth, including each of the varieties and species used in crosses that are taught by Mithen et al. In addition, it is noted that the Green Duke variety has elevated levels of glucosinolates relative to the Green Comet variety, for example.

8. Applicants assert that the Brassica plants produced by Mithen are not cultivated Brassica oleracea plants, but are "undefined fusion products", arguing that the glucosinolate trait is not an inherited trait from the wild Brassica. The Examiner maintains that the Brassica plants taught by Mithen et al are, in fact, cultivated Brassica plants, as stated above, and that term "undefined fusion products" is not recognized as a term of art for hybrid plants, unless they were produced through protoplast fusion. However, Mithen et al teach that the hybrid plants were produced by crossing. Furthermore, Mithen et al teach that the hybrid plants are fertile and backcross populations were made that had elevated levels of glucosinolates (paragraph 24 of the Background). At Table 1 and claim 19, Mithen et al teach levels of glucosinolates in Brassica oleracea that are in the claimed ranges.

9. Applicant argues that Mithen provides no motivation or suggestion to use cultivated Brassica species as donor plants for elevated glucosinolates. The Examiner maintains that Mithen et al used cultivated Brassica species and that varieties used in Mithen's crosses had elevated glucosinolate levels relative to other varieties, as stated above. Mithen et al teach crossing Brassica varieties to produce Brassica plants having elevated levels of glucosinolates. Furthermore, applicant's specification only discloses one Brassica oleracea variety, Wirosa, having at least that 280 micromoles per 100 gm fresh weight and 120 micromoles per 100 gm fresh weight. However, there is no disclosure of crossing this variety with another Brassica oleracea to produce elevated levels of glucosinolates in the progeny plants. It is noted that the varieties set forth in Table 4 in the specification are varieties that were known in the prior art, and it would have been obvious to cross known varieties of Brassica to produce varieties with

increased levels of glucosinolates, as taught by Mithen et al. The evidence for non-obvioiusness should be commensurate with the scope of the claims.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth F. McElwain whose telephone number is (571) 272-0802. The examiner can normally be reached on increased flex time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EFM

/Elizabeth F. McElwain/
Primary Examiner, Art Unit 1638